U.S. Department of Commerce
National Institute of Standards and Technology
Gaithersburg, MD 20899

Certificate Number: 97-136

National Type Evaluation Program

Certificate of Conformance

for Weighing and Measuring Devices

For:

Load Cell
Single Point Shear Beam, Compression
Model: TSP Series
n_{max}: 5000
Capacity: 10 kg to 100 kg (See Below)

Accuracy Class: III

Submitted by:

Cardinal Scale Mfg. Co.
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Standard Features and Options

Model Number	Capacity (kg)	v_{min} (g)	Minimum Dead Load (kg)
TSP-10KG	10	1.4	2
TSP-15KG	15	2.1	2
TSP-20KG	20	2.8	2
TSP-30KG	30	4.2	2
TSP-50KG	50	7.0	2
TSP-100KG	100	14.0	2

The TSP Series is identified by the model number TSP-XXKG, where the XX suffix represents the load cell capacity in kilograms.

Nominal output: 2mv/v
4-wire design

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: November 13, 1997

Gilbert M. Ugiansky, Ph.D.
Chief, Office of Weights and Measures
Issue Date: February 2, 1998

Cardinal Scale Mfg. Co.
Single Point Shear Beam, Load Cell
Model: TSP Series

Application: The load cells may be used in Class III scales for single cell applications consistent with the model designations, number of scale divisions, and parameters specified in this certificate. Load cells of a given accuracy class may be used in applications with lower accuracy class requirements provided the number of scale divisions, v_{min} values, and temperature range are suitable for the application. The manufacturer may market the load cell with fewer divisions (n_{max}) and with larger v_{min} values than those listed on the certificate. However, the load cells must be marked with the appropriate n_{max} and v_{min} for which the load cell may be used.

Identification: A pressure sensitive identification badge containing the manufacture's name, model designation, and serial number is located on the load cell. All other required information must be on an accompanying document including the serial number of the load cell.

Test Conditions: The Model TSP-20KG (20 kg capacity) and the Model TSP-50KG (50 kg capacity) load cells were tested at the California NTEP laboratory using dead weights as the reference standard. The data were analyzed for single load cell applications. The cells were tested over a temperature range of -10 °C to 40 °C. Three tests were run on each cell at each temperature. The temperature effect on zero was measured and a time dependence (creep) test was performed. The barometric pressure test was waived due to the load cell design and its insensitivity to changes in the barometric pressure.

The results of this evaluation indicate the device complies with applicable requirements.

Type Evaluation Criteria Used: NIST Handbook 44, 1997 Edition

Tested By: S. Chan (CA)